

REMARKS

The above-noted amendments to the claims, and particularly the amendments to claim 1, are submitted in response to the official action dated July 8, 2004. Applicants believe that the amendments to claim 1 merely clarify this claim, and hopefully avert any potential confusion which may have been caused by the nature of these claims.

The most significant aspect of the present invention is to provide a much simplified and improved method for producing hollow fiber membrane containing filters and one in which, after hollow fibers are laid in a first portion of a filter housing to form a bundle of hollow fibers, and the two portions of the filter housing are formed into the filter housing, a single step is employed for accomplishing these critical purposes; namely, applying a potting compound for connecting the plurality of hollow fibers together, for connecting the plurality of hollow fibers to the filter housing, and for simultaneously sealing the first and second portions of the filter housing together. All of this is accomplished prior to the subsequent step of cutting the ends of the hollow fibers from the sealed and enclosed filter housing. This simplified method is quite different from anything in the prior art, and provides a much simpler and more efficient way to produce these filters.

Claims 10-14 have been rejected under 35 U.S.C. § 112, second paragraph. The examiner contends that "said filter housing" lacks antecedent basis, and suggests that the phrase "a housing having" appears to have been inadvertently omitted from the second line of claim 10. Actually, it is believed that the above-noted amendments merely adding the words "a filter housing" to the second line of claim 10 obviates this objection, and leaves clear antecedent basis for "said filter housing" in

the remaining portions of these claims. It is therefore believed that at least this rejection has now been obviated.

Claims 1-4, 7 and 8-10 have been rejected as being unpatentable over Oscarsson under 35 U.S.C. § 102(b). The Examiner contends that Oscarsson teaches a method for producing a hollow fiber filter having a housing with a first and second portion (10a and 10b in FIG. 1), laying the plurality of fibers in the first portion (FIG. 1), forming the filter housing by sealing the first and second portion (col. 2, lns. 54-62), connecting the fibers together on at least one end and with the housing by applying a potting compound (col. 3, lns. 14-32), and subsequently cutting the ends of the hollow fibers at at least one end of the housing to have open ends for the fibers (col. 3, lns. 33-37). After noting that the claim recites potting before cutting the fiber ends and subsequently cutting the ends to open the ends, the Examiner notes that the reference does potting and then cuts the ends to open the ends of the fiber at column 3, lines 14-37. The Examiner further contends that the reference also teaches that the ends are cut to remove the fiber bundle in the housing from the winding wheel before potting and that this is stated to be an advantage over potting the fibers before cutting and removing from the winding wheel. Therefore, the reference is said to teach potting while on the wheel before cutting, even if it is taught as an inferior method, citing column 4, lines 4-14, and column 1, lines 20-28. The reference is said to be no less anticipatory if it disparages the invention after disclosing it. The question whether a reference "teaches away" from the invention is said to be inapplicable to anticipation analyses, citing *Celeritas Technologies Ltd. v. Rockwell International Corp.*, 150 F.3d 1354, 1361, 47 U.S.P.Q.2d 1516, 1522-23 (Fed. Cir. 1998).

With respect to the remaining claims, the Examiner contends that Oscarsson teaches sealing the terminal fiber

portions to cover the fiber ends (claim 2), a rotary winding wheel (claim 3), severing the hollow fibers after sealing the housing (claim 4), the first and second housing portions being half-shell (claim 7), the sealing method is gluing (claim 8), clamping together the first and second housing portions prior to sealing (claim 9), and that Oscarsson teaches a hollow fiber membrane filter comprising a filter housing with first and second portions of half-shell shapes, a bundle of hollow fibers disposed in the housing, and the ends of the bundle potted with the housing, referring to FIGS. 1-3 thereof. Finally, Oscarsson is said to teach that the potting aperture is required for making the filter and is not a structural part of the finished product, and is said to be shown in FIG. 2 at 23 (claim 14). This rejection is respectfully traversed in view of the above amendments and arguments and for the reasons set forth hereinafter.

As applicants have previously pointed out, the Oscarsson patent is specifically directed to a method of manufacturing hollow fiber membrane containing filters which includes the steps of (1) winding the hollow fibers onto a half-cell section to fully fill same; (2) closing the upper half of the cell section over the filled half to complete the side walls of the cell core; (3) cutting the fibers between the cell cores and removing the cores from the winding device; (4) potting the fibers at the ends of the cell by centrifugal casting, also permitting the potting compound to join with the cell walls; and (5) again cutting the ends of the fibers to re-expose the hollow cores thereof. This, of course, can be vividly contrasted to the presently claimed invention in which, after the hollow fibers are wound onto one section of the filter housing, the two sections of the filter housing are formed into the overall filter housing, and then in a single step of applying a potting compound into the closed filter housing, the hollow fibers are

connected together, the hollow fibers are connected to the filter housing, and simultaneously the first and second portions of the filter housing are sealed together. Subsequently, the ends of the hollow fibers are cut in this process.

It is thus clear, not only that the presently claimed method is quite different from that in the prior art, but that it is also a much more simplified and efficient method for doing so. The potting compound in the essential third step of the present invention effectively seals the two portions of the filter housing together and simultaneously pots the fibers.

Apart from the above distinctions, it is also noted that when Oscarsson discusses his second step of closing the other half of the cell section over the filled half, Oscarsson merely states that an empty longitudinal section is placed over each fiber bundle and "secured" to hold the fiber in place before the fiber bundles are severed. (Oscarsson at col. 2, lns. 6-10.) There is no specific discussion of any "sealing" which takes place in this process, but it is noted that in Oscarsson's discussion of the potting process, it is stated that "only a sufficient amount of potting compound is used to fill the ends of the core and the center section of the fiber bundle is free of any compound." (Col. 3, lns. 26-29.) There certainly is no reference to any step in which the potting compound is used to actually seal the housing parts to each other, as is required by the present claims.

It is also quite clear that the presently claimed invention eliminates the separate process step required by this prior art reference for securing together the two housing portions. In accordance with the present invention, the two housing portions are sealed together in the same step in which the potting compound is used for potting the fibers within the housing portions. Thus, a separate device for connecting together these two housing portions in a sealed fashion is no

longer necessary. This, in turn, not only reduces the expense of the product, it also reduces the total time required for producing these filters. This reduction in both cost and time is highly significant.

Realizing these deficiencies in the prior art, the Examiner has attempted to either merely refer to or combine Oscarsson with the Baudet *et al.* patent (U.S. Patent No. 4,038,190) discussed at column 1, lines 20-28 of Oscarsson. The portion of disclosure referred to by the Examiner characterizes the disclosure of the Baudet *et al.* patent as one in which the fibers are potted within the cell section while the sections are still on the winding device, and the fibers are then cut to free the sections and the cell is completed by addition of a cell wall and end caps. The Examiner attempts to use this disclosure as somehow obviating the deficiencies of Oscarsson with respect to potting before cutting.

In the first place, even if there were some reason to attempt to combine these two disclosures, which there is not, this would not result in the present invention. The Baudet *et al.* disclosure itself teaches the following steps: (1) winding the hollow fibers onto a half cell section to fill it; (2) sealing or gluing the hollow fibers to the core and to each other at both ends thereof; (3) sectioning the fibers; and (4) ultimately completing the device by adding the remaining half-cell section thereof. This disclosure obviously differs considerably from the presently claimed invention, and includes no discussion whatsoever of this invention; namely, of forming the two portions of the filter housing into a filter housing, and then in a single step applying a potting compound in a manner so as to connect the hollow fibers together, to connect the hollow fibers to the housing, and to simultaneously seal the first and second portions of the housing together, all of which is carried out prior to cutting the ends of the hollow fibers.

To try to obtain the claimed invention hereof requires more than a mere shuffling of the various steps in the two references apparently relied upon by the Examiner. To the contrary, a complete redrafting of the disclosures of both Oscarsson and Baudet *et al.* is required in a manner which is clearly based solely upon hindsight construction. It must again be noted, however, that there is no legitimate reason for attempting to combine the elements of the Oscarsson and Baudet *et al.* references. The early portion of the Oscarsson disclosure relating to the Baudet *et al.* patent describes the prior art over which the invention of Oscarsson is said to be an improvement. As Oscarsson himself puts it, that which distinguishes his invention "is the assembly of the cell core and the removal of the fiber-filled cell core from the winding device prior to the placement of the potting compound. This necessitates a second cutting or shaving of the ends of the fiber bundle in the core to re-expose the hollow cores of the fibers imbedded in the potting compound." (Col. 4, lns. 5-11.) The Examiner's reliance on the *Celeritas* case, however, is clearly inapposite. In that case, the court affirmed the invalidity of the patent at issue on the basis of anticipation by a 1991 article by the Telebit Corp. The court affirmed the anticipation defense in that case, a position which does not exist in this case. The Examiner does not contend that either Oscarsson or Baudet *et al.* anticipates the present invention. What the Examiner is contending is that there is some reason for one of ordinary skill in the art to make the combination of the Baudet *et al.* and Oscarsson references, and to then somehow obviate the present invention, which is clearly not the case. The fact of the matter was that in the *Celeritas* case the Telebit article, as specifically found by the court, disclosed each and every limitation of the claim, and therefore anticipated it. That is not the case here.

More appropriately, as the court stated in *Micro Chemical Inc. v. Great Plains Chemical Co. Inc.*, 103 F.3d 1538, 41 U.S.P.Q.2d 1238 (Fed. Cir. 1997), *cert. denied*, 521 U.S. 1122 (1997), "a determination of obviousness must involve more than indiscriminately combining prior art; a motivation or suggestion to combine must exist. . . ." In this case, the Oscarsson patent specifically states that the disclosure in the Baudet *et al.* patent is inferior, and should not be utilized. One skilled in the art would certainly not then be taught by this reference to combine the teachings of these references in some way to somehow produce the presently claimed invention. Quite to the contrary, this requires one to ignore the state of the art, and would have led away from this invention, as was the case in the *Micro Chemical* case. As was found in the case of *In re Wright*, 866 F.2d 422, 9 U.S.P.Q.2d 1649 (Fed. Cir. 1989), the PTO's attempt to demonstrate a suggestion of the claimed invention "consists of taking statements wholly out of context and giving them meanings they would not have had to one skilled in the art having no knowledge of appellant's invention, or to anyone else who can read the specification with understanding."

Thus, quite aside from the fact that any attempt to combine these references and create a hindsight reconstruction of the claimed invention falls of its own weight, there is simply no reason to combine these teachings in the first instance.

Claims 5, 6 and 11-13 have been rejected as being unpatentable over Oscarsson in view of Baurmeister *et al.* under 35 U.S.C. § 103(a). The Examiner contends that in addition to Oscarsson, Baurmeister *et al.* teaches the flexible film hinge which would make the two halves wing, citing FIG. 4 thereof. The Examiner concludes that it would be obvious to combine Baurmeister *et al.* with Oscarsson to make the housing assembly easier and for automation as taught by Baurmeister *et al.* at

column 3, lines 1-20. As for claims 11-13, these claims were said again to relate to film hinges as taught by Baurmeister et al., and that claim 13 recites clamping which is taught by Baurmeister et al., citing element 14 in FIG. 15 thereof. This rejection is respectfully traversed in view of the above amendments and arguments and for the reasons set forth hereinafter.

Applicants reiterate all of their above-noted contentions with respect to the clear deficiencies of the Oscarsson reference. The claim requirements for the portions of the filter housing to be flexibly connected, and more particularly by means of a film hinge, are nowhere shown in the art. Indeed, the Examiner has referred to FIG. 4 of Baurmeister et al., but none of the disclosure in Baurmeister et al. teaches a tubular housing longitudinally split into two halves, but rather discloses only a flexible tubular housing with a single longitudinal split. Thus, while FIG. 16 of Baurmeister et al. does disclose a tubular housing split into two halves, it does not disclose a flexible connection between the two nor a film hinge therebetween. Indeed, the use of a connecting hinge between the two halves is a potentially significant feature of this invention in that it allows the housing to be made in a single piece and with more cost efficiency therefor. In any event, in order to set forth even a *prima facie* case of obviousness over this combination of references, it is necessary for the Examiner to show that these references provide some suggestion or motivation to combine the teachings thereof, and this is clearly not the case here.

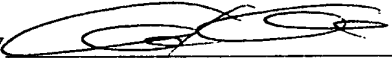
It is therefore respectfully submitted that all of the claims now pending in this application possess the requisite novelty, utility and unobviousness to warrant their immediate allowance, and such action is therefore respectfully solicited.

If, however, for any reason the Examiner does not believe that such action can be taken at this time, it is respectfully requested that he telephone applicant's attorney at (908) 654-5000 in order to overcome any additional objections which he might have.

Finally, if there are any additional charges in connection with this requested amendment, the Examiner is authorized to charge Deposit Account No. 12-1095 therefor.

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Respectfully submitted,

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